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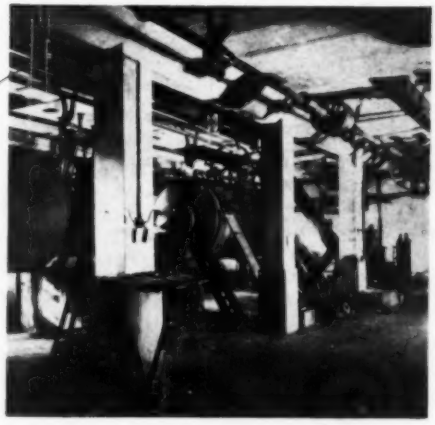

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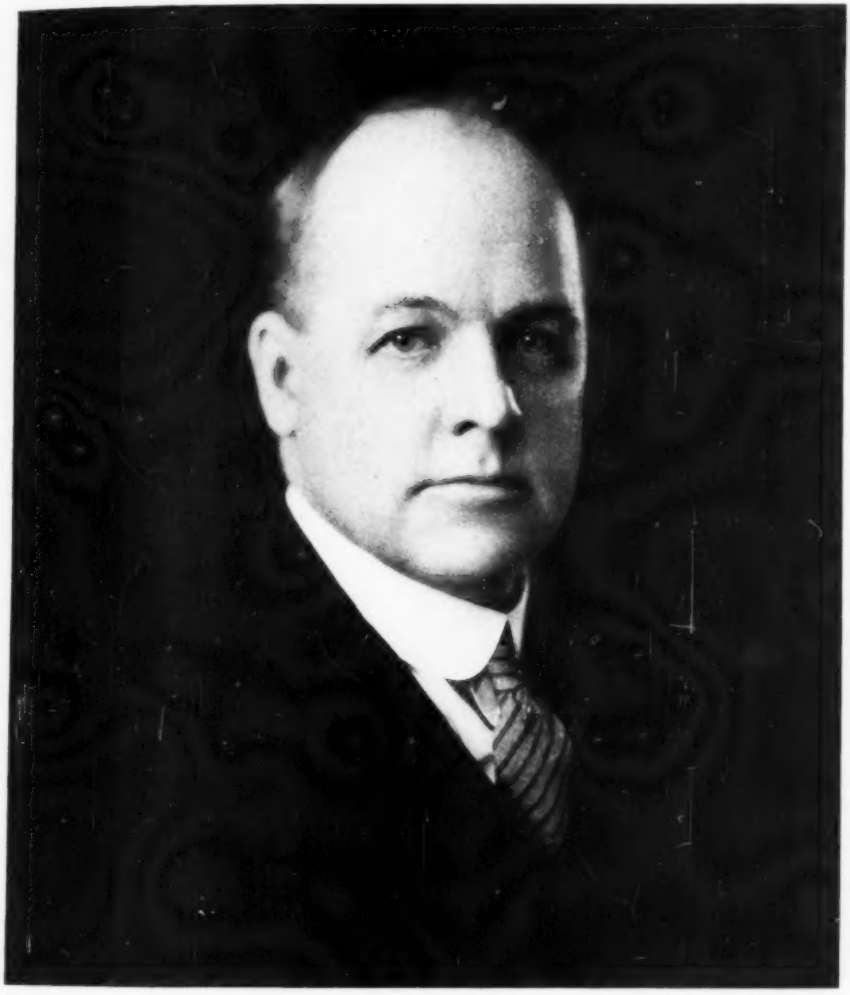
Oil Chemists Elect Trevithick

Society's Activities During Coming Year to Be Guided by Prominent New York Consultant.

AT their Eighteenth Annual Convention, held at Memphis, May 23rd and 24th, the American Oil Chemists' Society chose for their highest office during the year 1927-1928, Harry Phillips Trevithick, Ph.B., B.S., Consulting and Analytical Chemist and Official Chemist of the New York Produce Exchange, of 2 Broadway, New York City.



Harry P. Trevithick

Mr. Trevithick has been asso-

ciated with the Oil and Fat industry for many years, during all of which he has been known as a chemist of outstanding ability and as an indefatigable worker for the progress of the oil industry in general and for the welfare of The American Oil Chemists' Society in particular.

Mr. Trevithick graduated from Wesleyan University, Middletown, Connecticut, in 1907 with the degree of Ph.B. Upon his completion of extended post-graduate work at Massachusetts Institute of Technology, he received the degree of B.S.

In 1909 he entered the employ of the Refuge Cotton Oil Co. of Vicksburg, Mississippi, as Chemist. He remained with this company until 1916 when he entered the Insecticide Laboratory of the U. S. Dept. of Agriculture at Washington.

After a short while in this work, Mr. Trevithick was invited to become Chemist of the New York Produce Exchange and in 1917 he was made Chief Chemist. He is Referee Chemist for the Interstate Cottonseed Crushers Association at New York, and has in addition, an enviable reputation as a consultant in oils, fats and soaps.

Mr. Trevithick has ambitious plans for the further development of the American Oil Chemists Society into an organization of truly national scope and influence.

Oil and Fat Industries congratulates Mr. Trevithick on his election and the Society on its choice of such an able leader.

INAUGURAL LETTER OF PRESIDENT TREVITHICK

Dear Fellow Members:

The high honor you have conferred upon me is greatly appreciated, and I am certainly going to do my best to live up to the high traditions of the office and try to keep the standard of the Society as high as it is at present. To do this, however, it is not only the duty of the President, who is at the most only an executive carrying out the policies of the Society, but also of each individual member, to put his shoulder to the wheel and push.

Those of us who were at the Interstate meetings will remember the story of Mr. J. B. Perry of Grenada, Miss., about the negro stage coach driver. The negro was an expert with the whip and could snap a fly off the ear of the leading horse without touching the ear, and a grasshopper off the leaf by the roadside. When it was suggested to him, however, that he pick off the hornet from the top of the hornet's nest, he refused, saying that they were organized and would be after him.

In the same way, if we are well organized, we can make the force and power of our Society felt all over this country. Our Committees are one of our means of organization and I would especially urge that any man who has the least desire to serve on any particular Committee would write me to that effect. Also if any one knows of any problem that needs investigation, will he do me the favor of writing me and suggesting it?

The Society has always spent more time on Cottonseed Oil, because of the peculiar situation of

the Society, but it is high time that we branched out into the other vegetable oils more, and I would therefore urge most earnestly that if any of the soap, olive oil, or other members know of any problem in their line upon which the Society can work, that they will write me and I shall be glad to appoint a Committee to handle it.

At the annual meeting in Memphis, the Governing Committee authorized a fall meeting in the North at a time and place to be decided later. At this meeting, it is especially hoped that the members affiliated with other lines than Cottonseed Oil will be present in large numbers. If these members have any suggestions as to time, place, or program, please let me hear from you. This fall meeting will be more fully discussed later.

In general, it is our earnest desire that the Society this year will definitely prove itself true to name, *The American Oil Chemists' Society*—H. P. Trevithick

American Oil Chemists Meet in Memphis

Eighteenth Convention Develops Largest Attendance and Most Constructive Enthusiasm.

THE Eighteenth Annual Convention of The American Oil Chemists' Society was called to order by President R. H. Fash in the Louis XVI Room of Hotel Peabody, Memphis, Tennessee, at 9:30 A. M. Monday, May 23, 1927.

In spite of the last minute change of location for the meetings from New Orleans to Memphis, which was due to the unprecedented flood situation in the lower Mississippi Valley, there were over seventy-five members in attendance at Memphis, and many well-prepared papers of the greatest interest to the oil and soap industries, were presented.

The business and professional meetings were held in the Peabody Hotel with morning and afternoon sessions on May 23rd and 24th, and the social activities were thoughtfully planned and executed by the local committees of Memphis members, headed by that most accomplished host and toastmaster, Mr. E. R. ("Ed") Barrow.

The entertainment features included a delightful buffet luncheon at the Barrow-Agee laboratories on Monday; a motor trip through the magnificent parks and shaded drives of the "Bluff City"; golf at the Country Club for those devoted to the "Ancient and Honorable" game, and the culmination, the annual banquet at the Hotel Peabody, Tuesday evening.

The convention closed with the thought firmly established in the mind of everyone that the spirit of unity, progress and co-operation among all chemists interested in Oils and Fats has made splendid headway and is gathering momentum more rapidly than ever before.

Through the authors' and chairmen's co-operation, many of the papers and committee reports which were presented to the convention were published in full in the May issue of OIL AND FAT INDUSTRIES which was distributed to the members when the convention opened.

The minutes of the Convention and the full text of some additional papers and reports are presented in this issue.

American Oil Chemists' Society

Minutes of Eighteenth Annual Meeting Held at Peabody Hotel, Memphis, Tenn., May 23-24, 1927

1. Meeting called to order by President Fash 9:30 A. M. May 23rd, 1927.

2. Invocation Mr. F. B. Porter.

3. The minutes of the 17th Annual Meeting of the Society were read by the Secretary. On motion of Mr. J. J. Ganucheau, seconded; the minutes were adopted as read.

4. With Vice-President Trevithick in chair, President Fash read and presented the Annual Report of the President, which on motion of Mr. Barrow, seconded and carried, was referred to a special committee of Messrs. Putland, McMillan and McLean.

5. Report of the Secretary-Treasurer, J. C. P. Helm was read by the Secretary. Mr. Ganucheau moved that the report be referred to an auditing committee to be examined and reported back to the meeting. Seconded and carried.

6. Report of the Governing Committee presented. Accepted.

7. Report of the Membership Committee was presented by Mr. Trevithick. Accepted. After explaining some of the difficulties of the Committee, Mr. Trevithick moved that the By Laws be amended as follows:—Change Section C of Article II, headed Dues, to read: Corporation & Firm Associates shall pay in advance each year by June 1st, to the Treasurer of the Society, $10.00 annual dues, of which $2.50 shall be for a year's subscription to OIL & FAT INDUSTRIES; individual associates shall pay in advance each year by June 1st to the Treasurer of the Society $6.00 annual dues, of which $2.50 shall be for a year's subscription to OIL & FAT INDUSTRIES.

The motion was seconded and carried and the Secy.-Treas. ordered to have the By-Laws changed accordingly.

8. An address of Welcome to Memphis was made by Mr. E. R. Barrow.

9. Paper; "The Application of Modern Analytical Methods to Transactions in Cottonseed Products." Dr. David Wesson. In the absence of Dr. Wesson the paper was read by the Secy.-Treas. of the Society.

10. Paper. "The Cut Method of Determining Quality in Cottonseed"; G. S. Meloy, U. S. Department of Agriculture, Washington, D. C. A rising vote of thanks was given Mr. Meloy.

11. Report of "The Detergents Committee," L. F. Hoyt. In the absence of Mr. Hoyt the report was read by Mr. A. S. Richardson. Accepted.

12. Paper. "Winterizing," Francis M. Turner.

13. Report of the "Neutral Oil Committee," Claude E. McLean. After some discussion of the work carried on, the report was accepted and the committee requested to continue the work.

14. Paper. "Solvent Extraction Experiences in Foreign Lands," Bruno Hassel. Mr. Hassel being absent the paper was read by Porter Lee.

15. Report of "Committee of Awards" for Journal Articles. David Wesson. Dr. Wesson being absent the report was read by the Secretary of the Society. Mr. Trevithick suggested that the date of awards be set back. Action was deferred.

16. Report of the Moisture Committee. W. H. Irwin. Mr. Vollertsen read the report because of the absence of Mr. Irwin. After some discussion of proposed oven, the report was accepted, and the Secretary was instructed to request the new Moisture Committee to investigate the Putland tests made by the method of heating oil till it smokes; Mr. Putland having shown some results on tests made by him that would indicate that a sample of refined oil would show considerable loss in weight as many times as it was heated.

17. Report of the Referee Examining Board, David Wesson. In the absence of Dr. Wesson the report was read by the Secretary of the Society. Accepted.

18. Report of the Planning Committee, H. J. Morrison. President Fash asked that this report be adopted, not accepted. On motion of Mr. McLean duly seconded and carried the report was adopted.

19. Address by Mr. Jackson of the Darco Sales Corporation on bleaching carbons and chars.

20. President Fash appointed the following Committees to act during the Meeting:—

Resolutions Committee:
Dr. H. B. Battle, H. C. Dormitzer and W. D. Hutchins.

Auditing Committee:
L. C. Howe, A. K. Schwartz and H. E. Brownfield.

Nominating Committee:
Dr. Felix Paquin, J. J. Ganucheau and J. R. Mays, Jr.

Committee on President's Address:
A. W. Putland, C. E. McLean and J. C. McMillan.

The Meeting adjourned till next day May 24th, 1927.

21. Report of Cake Color Committee, R. K. Brodie. Mr. Brodie not being present the report was presented by Mr. Hamner. Accepted and committee requested to continue the work.

22. Report of Basic Research Committee, E. R. Barrow. Mr. Barrow had no written report, but addressed the Meeting and explained the work that had been done. Accepted.

23. Address. "New Investigations Upon the Chemistry of Gossypol," E. P. Clark, Bureau of Chemistry, Washington, D. C.

24. Address. "The Fundamental Principles of Colorimetry," Dr. Irwin G. Priest. After addressing the Society, Dr. Priest offered to test the color-observation powers of anyone attending the meeting, while in Memphis. Mr. Vollertson was appointed to take care of arranging and making appointments for those wishing to take advantage of Dr. Priest's offer.

25. Report of the Color Committee, H. P. Trevithick. Report accepted with recommendations to incoming color committee to investigate Color Reading of other oils in addition to Cottonseed oil.

26. Paper. "What Is a Refined Oil?" Herman Aspegren.

27. Address. "Nature of the Various Constituents to be Removed in Refining." Dr. G. S. Jamieson explained he had no written paper as what he had to say was simply a resumé of what had been done and had already been published in the Cotton Oil Press and Journal of OIL & FAT INDUSTRIES at different times.

28. Paper. "Fundamental Principles of Refining," C. B. Cluff.

29. Paper. "Requirements of a Refining Method from the Standpoint of a Commercial Chemist," T. C. Law.

30. Address. "Standardizing the Lovibond Glasses," Dr. Irwin G. Priest, Bureau of Standards, Washington, D. C. Dr. Priest here

returned the Society's set of Lovibond Color Glasses that had been standardized by the Bureau of Standards. Dr. Priest was given a rising vote of thanks by the Society for the large amount of work that had been done by him and the department at Washington on this problem.

The Resolutions Committee was instructed to prepare resolutions commending and thanking Dr. Priest and his department for what they had done for the Society; a copy of the resolutions is to be sent to the Director of the Bureau of Standards at Washington, D. C.

31. Report on Cooperative Free Fatty Acids Tests, C. B. Cluff. Accepted.

32. Report of the Refining Committee, C. B. Cluff. The work of the Committee and the new Refining Method was discussed. The report was accepted. The Resolutions Committee was instructed to formulate resolutions thanking Mr. Cluff, the Procter and Gamble Co., Mr. R. K. Brodie, and Mr. Brumbaugh, for their very thorough work on this refining method.

33. Report of Seed Committee, R. K. Brodie. Mr. Brodie being absent report was read by Mr. Cox. The report was accepted.

34. Report of the Uniform Methods Committee, Dr. Felix Paquin. The report was read by Mr. Hamner, Dr. Paquin having to attend a committee meeting of the Interstate Assn. Report accepted.

35. Report of the Smalley Foundation and Ammonia Committee, H. C. Moore. Because Mr. Moore was unable to attend the meeting the report was read by the Secretary of the Society. Accepted.

In conjunction with the report of the Smalley Foundation, Mr. R. M. Monsalvatge was given a vote of thanks by the Society for the splendid way in which he had been preparing and sending out the Cooperative Meal Samples.

36. Paper. "A Rapid Control Method for the Determination of Neutral Fat in Soap," L. F. Hoyt. The paper was read by the Secretary of the Society, Mr. Hoyt not being present at the meeting.

37. Report of the Auditing Committee, L. C. Howe. Accepted.

38. Report of the Resolutions Committee. Dr. H. P. Battle, Chairman. The report was accepted and a rising unanimous vote was given to adopt and inscribe on the minutes the resolutions on the death of Mr. P. S. Tilson.

RESOLUTION:—

Whereas, since we were last called to order in New Orleans in May, 1926, in Annual Convention assembled, and within a very short time after we were adjourned, it has pleased Almighty God to remove from our midst on May 29th, 1926, in the city of Houston, Texas, in the 59th year of his age, one of our devoted members, a past President, and one of the most energetic participants in all of the activities of the Society, our beloved associate and friend, *Phineas Shields Tilson.*

RESOLVED. 1: That we bow in reverent submission to His Holy Will, with the knowledge that what He does is for the best, and for ultimate good, although we may not now understand.

RESOLVED. 2: That in Brother Tilson's life we have a fine record of achievement and an example to be emulated. Born in Texarkana, Ark., he was educated in the schools of his native city and graduated in 1888 from the Texas A. & M. College, serving there for some

years as Instructor in Engineering Chemistry. Afterwards he became Collaborating Chemist of the U. S. Department of Agriculture, later becoming Associate State Chemist of Texas. In 1904 he established the Houston Laboratory, and by strenuous attention and painstaking and accurate work, built up an institution that was far more than local, and fully enjoyed the respect and confidence of his clients. His character was above reproach, his presence and association inspired the confidence and respect of all. Deeply religious, he was a devoted member of The Protestant Episcopal Church, and at the time of his death was Senior Warden. In association with his fellow men, he was genial, whole-souled, and lovable. As a member of the Rotary Club, the Elks, and the Knights of Pythias, he was at all times outstanding and respected. As a charter member of the American Oil Chemists' Society, he was most active. Whether as plain member, chairman of committees, or as President, he performed his duty in the highest degree of Faithfulness, efficiency, courage and success.

RESOLVED. 3: That we are thankful we can point in just pride to such a record, as one to be emulated and as a memory to be honored and loved.

RESOLVED. 4: That we tender to his beloved wife, our heartfelt sympathies with the knowledge also that while not present, his life and example and love will always remain with her and with us.

RESOLVED. 5: That a copy of these resolutions be sent to Mrs. Tilson and another copy spread upon our minutes.

Respectively submitted,
H. P. Battle, Chairman.
W. D. Hutchins,
H. C. Dormitzer.

39. Report on the President's address, presented by A. W. Putland, accepted.

40. Address on "Our Journal" by Alan Porter Lee, of OIL & FAT INDUSTRIES.

41. Announcements and Miscellaneous Business. The reading of a Post Card from Dr. Wesson, announcing that he was married was greeted with cheers. The place and time of the Banquet was announced.

42. Report of the Nominating Committee, Dr. Felix Paquin, nominating the following for office for 1927-28:

President:—H. P. Trevithick.
1st Vice-Pres.:—A. W. Putland.
2nd Vice-Pres.:—W. D. Hutchins.
3rd Vice-Pres.:—J. D. Evans.

The Governing Committee nominated J. C. P. Helm for Secy.-Treas. By unanimous vote, the nominations were closed, and the above nominees elected.

43. Mr. Trevithick was installed as President, Mr. Fash retiring. Mr. Trevithick addressed the meeting.

44. There being no further business, Mr. Irwin moved to adjourn, seconded, and carried. Meeting was declared adjourned by President Trevithick.

REFEREE APPLICATION

The Referee Board of the American Oil Chemists' Society announces that Mr. Herbert M. Shilstone of New Orleans, Louisana, has applied for certification as a Referee Chemist. The By Laws of the Society call for the publication of each applicant's name in OIL AND FAT INDUSTRIES two months in succession and this is the first publication of Mr. Shilstone's application.

Oil Chemists' Banquet

Convention Closes With Most Enjoyable Cabaret-Dinner Where Fellowship Prevails.

AT the conclusion of the Eighteenth Annual Convention of the American Oil Chemists' Society, the Annual Subscription Banquet was held Tuesday evening, May 24th, in the Hotel Peabody, under the auspices of the Memphis Committee of the Society, Mr. E. R. Barrow, Chairman. At the speakers' table, ably presided over by Mr. Barrow, Toastmaster, were seated Messrs. R. H. Fash, retiring President; H. P. Trevithick, newly elected President; Mr. F. N. Bridgers and Hon. Christie Benet, President and Secretary, respectively, of the Interstate Association; Dr. H. B. Battle, Donor of the Smalley Foundation Cup; G. Worthen Agee; Louis M. Geldert, Manager and Editor The Cotton Oil Press; Alan Porter Lee, Manager and Editor OIL AND FAT INDUSTRIES; Mrs. Barrow, Mrs. Agee, Mrs. Hamner and Mrs. Geldert.

The festivities were inaugurated with a synthetic concoction pronounced by all present to be worthy of at least equal rank with Dr. Wesson's famous Croquettes Creole of Cottonseed "Beefsteak."

The members and their guests then attacked the serious business of a substantial, tastefully served dinner, but were handicapped by the necessity of giving first attention to the cabaret entertainment furnished by Chairman Barrow and his Memphis committee. No, the committee did not perform, but it certainly picked the performers, And How. The songs were excellent, the dances delightful, and the dancers knew *all* the steps.

At the conclusion of the performances, Mr. Barrow, acting as Toastmaster, introduced the speakers of the evening who included Mr. Bridgers, Hon. Christie Benet, Retiring President Fash, President Trevithick, Dr. Battle and Mr. Louis Geldert.

The keynote of all the speakers was the growing dependence of Industry generally and the Oil Industries particularly, upon Chemists and Chemical Engineers; the great progress of the past few years and the brilliant future ahead of the American Oil Chemists' Society, based upon the friendly cooperation and enthusiasm which is so evident among all its members.

Dr. Battle presented to the Society the beautiful silver loving cup donated by him for the winner of the Smalley Foundation Ammonia Check-Meal work.

The members present all expressed their delight and appreciation of the exceptionally fine entertainment programme prepared for the visiting members and ladies by the Memphis committee, particularly in view of the fact that the convention was transferred from New Orleans on such short notice. The thanks of the Society are due to all the Memphis members, who put their shoulders to the wheel and made the convention an outstanding success.

The gathering broke up with the unanimous expression that the Eighteenth Convention of the American Oil Chemists' Society had been the most successful and enjoyable in the history of the Society, from its foundation.

President of Chemists Addresses Society

Year's Progress Reviewed by R. H. Fash, Retiring Executive

IN the life of an organization such as ours, at first there is a necessity for an intensive study of various methods of analyses, resulting in the formation of committees to study these methods. As time goes on, the committees will solve the problems on which they are working or else will encounter an apparently unsolvable problem. Our Society has advanced to this latter stage, as witness the results of the Smalley Foundation Work and the various committees whose work has been completed. The refining committee had apparently encountered an unsolvable problem until Mr. Cluff solved the problem, as his report at this meeting will indicate. However, the fact that our Society has solved some problems does not mean that there are none left with which to grapple. It is necessary for us carefully to go over the field we have covered and determine what problems we have not studied, as well as decide upon the problems which require further investigation.

Immediately after the adjournment of our last annual meeting the Interstate Cotton Seed Crushers' Association, through Mr. Jasspon, asked for information regarding the relation of the free fatty acid content of cottonseed to the quality of the oil which could be produced from the seed. This information was desired in order to formulate trading rules covering the buying of cottonseed. The present rules covering this rather important subject are on a very unscientific basis. It is highly desirable that the purchase of cottonseed be subjected to more scientific control so as to reduce the speculative element to a minimum. I appointed Mr. R. K. Brodie as chairman of a committee to work out a method for the determination of the free fatty acid of cottonseed and determine the relation of the free fatty acid content to the quality of the oil that could be produced from the seed. Mr. Brodie and his committee are to be commended for the promptness and completeness of their investigation.

With the refining committee apparently confronted with an unsolvable problem in trying to so standardize our refining test that different operators would obtain concordant results, I appointed Mr. Claude E. McLean as chairman of a committee to study the determination of neutral oil in cottonseed oil with the idea of working out a more scientific method of determining the value of cottonseed oil.

A color standard was adopted for cottonseed cake and meal at the last annual meeting of the Interstate Cotton Seed Crushers' Association. I appointed Mr. R. K. Brodie chairman of a committee to work out a procedure for making the color comparison between the sample and the color standard. The trade was in a rather demoralized condition with respect to grading the color of cake and meal due to lack of a method for making the color comparison. With his usual promptness, Mr. Brodie early in the season reported on a method for making the color comparison. This method while not

adopted as official relieved the situation.

Several years ago a set of red Lovibond glasses was delivered to the Bureau of Standards for the purpose of having their exact color value and relationship one with another determined so as to afford a means of standardizing the glasses in use in the industry. This work has finally been completed so that this coming year we will be in a position to standardize glasses. Probably the simplest method of procedure would be for the Society to sell certified glasses, having these glasses made by some American manufacturer rather than to depend upon a foreign source. A successful working out of a means of providing the trade with certified color glasses, together with this year's work of the refining committee will do more towards reducing friction in oil trades and elevating the standing of chemists than any other thing we could accomplish.

In order to reduce to a minimum trading rules occurring in the methods of analyses used in the cottonseed oil industry, Mr. Cluff was appointed chairman of a committee to rewrite the rules.

Dr. Battle having last year won the Smalley Foundation cup for the third time, became the permanent holder of it. He very graciously donated another cup to the Society, which cup will be presented tomorrow night to the winner.

The work of a president consists mainly in acting as a coordinating force in carrying on the work of the Society. The real work is done by the members of the various committees. It is these men whom I wish to thank personally and in the name of the Society for their earnest, thorough work.

I also wish to thank the Procter & Gamble Company for their courtesy in allowing the Society to have so much work done in their laboratories.

In conclusion, I wish to assure the Society of my appreciation of having been their President.

Barrow-Agee Give Laboratory Luncheon

Prominent Memphis Chemists Entertain American Oil Chemists' Society

ONE of the most perfect social functions of the year was held in Memphis, Tennessee, on Monday, May 23rd, 1927, from twelve noon to three of the afternoon when Mr. and Mrs. Edward R. Barrow and Mr. and Mrs. G. Worthen Agee entertained their many friends of The American Oil Chemists' Society (the entire membership), at a buffet luncheon in the laboratory rooms of Barrow-Agee Laboratories, on Third Street.

The repast was dainty, appetizing and satisfying, and the many charming Memphis matrons and debutantes who assisted the hostesses contributed much animation to the occasion.

The ladies who assisted Mrs. Agee and Mrs. Barrow in entertaining their guests included Mrs. Cox, Mrs. Blake, Mrs. Bartlett, Mrs. Boyd, Mrs. Forbes. Mrs. Lehman Johnson, Mrs. W. C. Johnson, Mrs. Burt, Mrs. Seabold, Mrs. Daniel, Mrs. Allen, Mrs. Weaver, Mrs. Knipple, Miss Blackshare, Miss Cooper and Miss Bee.

American Oil Chemists' Society

List of Registrants at Memphis Convention

H. E. Brownfield, Dallas, Texas
L. B. Forbes, Memphis, Tenn.
C. H. Cox, Memphis, Tenn.
J. C. P. Helm, New Orleans, La.
D. C. Picard, Birmingham, Ala.
J. D. Evans, Atlanta, Ga.
H. P. Strack, Nashville, Tenn.
G. S. Meloy, Washington, D. C.
J. C. McMillan, Atlanta, Ga.
A. W. Putland, Portsmouth, Va.
H. P. Trevithick, New York
J. S. Parker, Vernon, Tex.
N. C. Hamner, Dallas, Tex.
J. R. Mays, Jr., Shreveport, La.
R. H. Fash, Ft. Worth, Tex.
W. J. Bramblett, Dallas, Tex.
F. Paquin, Galveston, Tex.
H. C. Dormitzer, Chicago, Ill.
W. R. Stryker, New Orleans, La.
H. J. Morrison, Cincinnati, Ohio
A. K. Schwartz, Houston, Tex.
A. S. Richards, Cincinnati, Ohio
J. T. Dragger, Jr., Montgomery, Ala.
G. S. Jamieson, Washington, D. C.
A. A. Jackson, New York
W. F. Baughman, Washington, D. C.
A. P. Lee, New York
J. J. Vollertsen, Chicago, Ill.
A. Campbell, Cincinnati, Ohio
F. W. Kurk, Chicago, Ill.
C. E. McLean, Ada, Okla.
T. L. Rettger, Memphis, Tenn.
F. B. Porter, Ft. Worth, Tex.
R. M. Miller, Philadelphia, Pa.
R. Monsalvatge, Savannah, Ga.
M. M. Durkee, Decatur, Ill.
N. E. Katz, Meridian, Miss.
W. D. Hutchins, Savannah, Ga.
F. R. Robertson, Houston, Tex.
G. F. Clark, San Antonio, Tex.
J. Blades, St. Louis, Mo.
H. B. Battle, Montgomery, Ala.
G. K. Witmer, Montgomery, Ala.
J. J. Ganucheau, New Orleans, La.
F. M. Turner, New York
T. C. Law, Atlanta, Ga.
B. L. Caldwell, Little Rock, Ark.
J. C. Butt, Jackson, Miss.
J. Pelofsky, Chattanooga, Tenn.
J. R. Shipner, Chicago, Ill.
C. S. Meehan, Memphis, Tenn.
L. C. Howe, Kansas City, Kan.
R. C. Hatter, Louisville, Ky.
G. A. Fisher, Indianapolis, Ind.
E. Seabold, Memphis, Tenn.
G. W. Agee, Memphis, Tenn.
E. R. Barrow, Memphis, Tenn.
R. W. Bartlett, Memphis, Tenn.
R. E. Knipple, Memphis, Tenn.
G. L. Weaver, Memphis, Tenn.
H. M. Boyd, Memphis, Tenn.
C. B. Cluff, Cincinnati, O.
H. Aspegren, Norfolk, Va.
M. G. Boulware, Memphis, Tenn.
J. J. Morris, South Carolina.
L. Johnson, Memphis, Tenn.
R. Gonzales, Monterrey, Mexico.
G. O. Daniel, Memphis, Tenn.
J. P. Harris, Chicago, Ill.
E. H. Tenent, Memphis, Tenn.
W. H. Scott, Memphis, Tenn.
W. H. Irwin, Chicago, Ill.
I. G. Priest, Washington, D. C.

Personal Comment

Items of Interest from the Oil Chemists' Convention

C. H. COX, always active, was just as busy with entertaining and arranging at the Memphis convention, as he usually is with analyzing.

The many friends of D. C. Picard of Birmingham, Alabama, were glad to see him at the Memphis Convention after an absence of several years. He was formerly a most regular attendant.

The Society's new First Vice-President is A. W. Putland, Chief Chemist of Portsmouth Cotton Oil Refining Corporation of Virginia. Congratulations.

President Trevithick has the happy faculty of getting about quickly from place to place with little effort. He needed this ability at Memphis because of the division of activities between Hotels Chisca and Peabody.

Dr. Felix Paquin, with his charming Southern manner, his summery attire and his quiet helpfulness, was on hand as usual.

What convention could be held by Oil Chemists without the Buckeye Boys, Morrison and Campbell. They are always present and ready to help in every way.

Seems like old times, getting into friendly arguments on the merits of methods with Schwartz, even if instead of David of New Orleans it is Andy of Houston, who is his father's worthy successor.

Jamieson and Baughman, the Oil and Fat Laboratory authorities of the U. S. Dept. of Agriculture at Washington, were welcomed at the Convention, as always.

A. A. Jackson, the genial b'eaching specialist, had many good stories to relate, particularly about the "Dark O"—the Moon.

R. M. Miller, Sales Manager of Arthur H. Thomas and Company, Laboratory Apparatus and Chemicals, Philadelphia, was an interested attendant at the meetings of the Society. Mr. Miller and his company are zealous in supporting all the activities of Chemists.

Dr. H. B. Battle of Montgomery, Alabama, continues his generous support of the Society, with the donation of the Cup for best ammonia average in co-operative analytical work and the loan of the famous "Battle-Ax" for the President's Gavel.

Dr. Francis M. Turner of New York, had much news of interest to impart, chiefly regarding winterizing and extraction methods.

Everybody regretted that Tom Law had so much work in so many places that he could be with us for only part of the time. Better luck, next year, we hope.

Dr. Irwin G. Priest, of the Bureau of Standards, presented the Society with some of the most important facts developed to date in the Science of Colorimetry. The most interesting feature of Dr. Priest's work was a series of tests for accuracy of color-vision. Many members availed themselves of the opportunity to determine whether they really could tell "prime" from "off" by the eye alone.

C. B. Cluff shows the proper spirit of loyalty to the Society. Having been in California on busi-

(*Continued on page* 272)

New Oil Settlement Rule

Oil Millers Association Makes Vital Change in Trading Regulations

AT their Thirty-first Annual Convention in Memphis, Tennessee, on May 25, the Interstate Cottonseed Crushers' Association adopted new regulations for the adjustment of value on sales of crude cottonseed oil as recommended by the Rules Committee and incorporated in Rule 142 of the Association, as follows:

Rule 142

Strike out Rule 142 as at present written and substitute the following:

"RULE 142—Seller shall pay buyer for off color at rate of ½ of 1% of contract price for each one point in excess of 7.6 red, also ¾ of 1% of contract price for slightly off flavor and odor, or 1½% of contract price for off flavor and odor, also at rate of 1% of contract price for each 1% refining loss above 9%. All allowances to be based on net weight of crude oil received by buyer. In no case shall the net return to the shipper be less than the value of the shipment as soap stock at time of delivery.

Where Crude Cotton Seed Oil delivered on a 'Prime Crude' or 'Basis Prime Crude' contract refines with a loss in weight under 9% and/or with a color under 35 Yellow, 7.6 Red, the buyer will credit the seller ½ of 1% of the contract price for each 1% of refining loss under 9% and ½ of 1% of the contract price for each one point of red color under 35 yellow, 7.6 Red.

All fractions in color and refining loss to be figured fractionally, except that no credit or charge shall be made unless the difference is greater than ½ of one point in color and/or in excess of ½ of 1% in refining loss.

When Off Oil is sold by sample, any oil tendered shall equal sample, but if it should refine at a loss exceeding the loss of the sample by not over 5%, but otherwise equal, it is still a good tender at a reduced price in proportion to the excess loss. The buyer shall have the right to reject any tank of oil if it tests beyond 5% refining loss as compared with sale sample."

The adoption of this rule marks an epochal change in the trading methods in vogue in the sale of crude cottonseed oil and at the same time opens to the crude oil millers a wonderful opportunity for improvement of the quality of their products, for a substantial increase in their profits and for the establishment of the cotton oil milling industry of this country on a sounder economical basis than it has heretofore enjoyed.

No Premiums in Past Years

Under the old oil-settlement rule, which has been replaced by the new Rule 142, whereas the oil miller was called upon to allow discounts to purchasers of crude oil for excessive refining loss and color, on the other hand the miller received no premium for refining loss under 9.0% or for red color and 7.6% Red, Lovibond Scale. The net result of this situation was that there was no incentive to the Oil Miller to produce oil any better than the minimum requirements for prime,

and if the loss was less than 9.0%, he could not be blamed for leaving enough meal and debris in the oil to increase the loss to that minimum of 9.0%.

New Rule Offers Profit Opportunity

Under the new rule this situation has been entirely changed and the miller receives a substantial premium for every improvement in color and reduction in refining loss which he can effect. By the application of modern methods, cottonseed oil millers can command thousands of dollars in premiums from purchasers of better than prime oil.

If, as is inevitably the case, some of the oil produced is "off" oil, the application of the same modern methods of manufacture will reduce the degree by which the oil is off, thereby saving the miller appreciable sums in consequent reduction of the discounts which he must allow for this off oil.

OIL AND FAT INDUSTRIES calls particular attention to the articles immediately following, by Mr. Horine and Mr. Harrocks, as containing suggestions of vital interest to every cottonseed oil miller at the present time.

The Filtration of Crude Cottonseed Oils

Application of Simple Process Shows Definite Profit for Millers.

By F. L. HORINE

THE new agreement in regard to the terms of payment the buyer or refiner must meet in settling for cottonseed oil has at last placed a premium upon the production of a cleaner and higher quality oil, one that will refine with less loss and to a lower red color. At once it is of interest to the producer to know how to obtain this better and more valuable oil. The clearly indicated method is by filtration, a process already proven. The equipment called for is inexpensive and simple and the materials needed are upon the market. The actual costs involved are appended to this article.

The filter used is the ordinary plate and frame variety. Were the crude and very briefly settled oil to be filtered without the admixture of a filter aid, the rate of flow from the filter would be poor and the removal of impurities incomplete. These unsatisfactory results would be due to the fact that the holes in the filter cloth are relatively large and, despite that fact, soon clogged with slimy matter. To maintain a high rate of flow, to give the filter a long operating cycle, and to produce a properly cleared oil requires the admixture into the oil to be filtered of a small percentage of filter aid, an especially prepared porous diatomaceous silica. The greater part of the oil can later be blown or steamed from the filter cake and the cake returned to the presses. The proportion of filter aid used to meal produced is insignificant. This paragraph does not attempt to give exact operating details but merely to outline the procedure.

The filtration process just described insures the complete removal of all suspended matter such as granular and colloidal meal, resins and gums, and moisture. The initial advantages of obtaining such

an oil are apparent. An oil which will not deteriorate in 4-6 months results. The usual weekly "clean-up," which may amount to 2% of the output, is eliminated. This clean-up always entails losses, selling meal as foots or recovering deteriorated oil. But the main advantages of filtration are found in the reduction of refining loss and improvement of color in the refined oil. Observed work has shown that a properly filtered oil shows a decrease in refining loss of at least 2% and in red color of 1.0 R. This figure is one somewhat below average.

Recapitulation of Profits

A summary of the costs and savings due to filtration, under two different conditions, are tabulated below.

Case 1. Crude at 8c. 4 Press Mill. 24,000 lbs. Oil Daily. Refining loss improved 2%, means 1% increase in price on prime oil. Color improved 1.0 Red means ½% increase in price on prime oil. Daily increase in value of oil = (24,000 x 0.08) x 0.015 = $28.80.

Cost of filtration can be summed up as follows:

1. Daily investment charge at 8% for 200 days = $\frac{\$2{,}000 \times 0.08}{200} = \$0.80$
2. Daily depreciation charge, of 10% for 200 days = $\frac{\$2{,}000 \times 0.10}{200} = \$1.00$
3. Daily power charge .. = $0.18
4. Daily maintenance and supplies, cloth, paper.... = 1.03
5. Direct Labor—6 hours at 50c ..... = 3.00
6. Filter Aid—60 lbs. at 4.3c ..... = 2.58

Total filtration cost $8.59

Net Daily Profit = $28.80 — $8.59 = $20.21

Case 2. Crude at 8c. 4 Press Mill 24,000 lbs. Off Oil Daily. An Off Oil improvement of 2% in loss on refining means 2% increase in price. Color improved 1.0 Red means ½% increase in price.

Daily increase in value of oil = (24.000 × 0.08) × 0.025 = $48.00

The cost of filtration is as under Case 1.

So net daily profit = $48.00 — $8.59 = $39.41.

Chevreul Prize Contest Extended

All Papers Published in OIL & FAT INDUSTRIES Prior to April, 1928, Eligible for Prizes

The Chevreul Prizes were offered by the American Oil Chemists' Society and Oil and Fat Industries for the three best original articles published in Oil & Fat Industries during the season 1926-1927.

At the Memphis meeting of the governing committee of the American Oil Chemists' Society, it was the consensus of the members that the prize awards should be extended to include for consideration all articles published up to and including the April, 1928, issue of OIL AND FAT INDUSTRIES, and the Award Committee has so ordered.

The entry of contributions of members of the American Oil Chemists' Society and of all others is earnestly desired and solicited for consideration for the Chevreul Prizes.

Filter Paper in the Vegetable Oil Industry

Proper Selection of Filter Medium Promotes Quality and Profits

BY THOMAS L. HARROCKS

THE use of filter paper as a filtering medium for vegetable oils is regular practice in many refineries.

The type of paper used varies with the conditions under which it is used and the purpose which prompts its use.

Purposes of Use of Filter Paper

In general, filter paper is used for two widely varying purposes:

1—To protect filter cloths from the film of oxidized oil principally in the filtration of linseed and other drying oils.

2—To obtain an oil of crystal clarity and sparkle for the highest class of trade.

Filter Paper has been used by Linseed Oil Refiners for years in the usual type of plate and frame press. The sheets are usually something over twice the length of the plates so that they can be thrown over the frame and cover each side. For example, a 24-inch press will require sheets 26 x 52 inches.

The type of paper used for this work for years was a heavy wool felt paper similar to roofing or floor covering base but made more carefully and with a much more comprehensive grading of rags. Recently, however, a white paper of similar character has become more popular probably because the white paper does not impart color to oil even when the oil is left standing in contact with it for a long period.

Various Types Papers Used

Some refiners prefer a different paper for raw and boiled oils, others use the one grade for both types.

For clarifying oils where protection of the filter cloths is not the first consideration, other types of filter paper are demanded.

The type of paper in such cases is a pure white paper made of linen and cotton rags and with a creped surface such as is seen on paper napkins.

The weight usually used varies between seventy and one hundred forty grams per square meter, equivalent to a weight per thousand sheets nineteen by twenty-four inches of from 50 to 90 pounds.

Occasionally heavier papers are used and sometimes papers with a small percentage of woodpulp are preferred, but these are exceptions.

The Olive Oil Industry abroad has for years employed a special type of filter press requiring a special French filter paper. At the present time there are three installations of this type in the United States, all, apparently, giving excellent results.

One of the drawbacks to the use of Filter Paper has been the difficulty in obtaining reasonably small quantities from the average paper mill. Most mills will not make less than a ton at one time and the average refiner requires possibly one fourth of that quantity at a time. The use of filter paper has broadened during the past few years, however, and it is not necessary to purchase several years' requirements at once in order to obtain the type of paper desired.

The New Laboratory Refining Machine

DETAILED plans have been completed for the Laboratory Refining Machine necessary for the new method adopted at the recent Interstate Cottonseed Crushers' Association Convention.

The machine will be built in multiples of three stirring units or paddles. The standard machine will have twelve (12) paddles in two rows of six (6) each, and larger machines can be built with eighteen (18) or twenty-four (24) paddles as may be desired.

In order to reduce noise and wear to a minimum, helical gears will be used wherever possible and ball-bearings where necessary. Where straight gears cannot be avoided fabricoid gears will mesh with steel gears.

The drive from motor to the transmission will consist of helical gears and shaft, obviating the use of noisy chain or slipping belt. The transmission will permit of either row of paddles being driven independently of the other at either 70 or 250 R. P. M., or both can be driven at the same speed if required. The gear shifting device will be simple and positive.

Power will be transmitted from the horizontal drive shafts to the paddle shafts by means of helical gears. It will be possible to stop any individual paddle while the others remain in motion. Paddles will comply with the requirements of the new method as to size and shape and will be of entirely new design to avoid the defects of the old type that caused some trouble. It will be possible to detach paddles from machine, as in the present type, for cleaning.

The refining method requires that water in the bath surrounding the oil be kept mixed by agitation. To accomplish this, paddles will be provided that will keep the water in motion and which will operate independently of the horizontal drive shafts and maintain a constant speed, unchanged by the change of speed of the refining paddles. This is an important point because when refining paddles are only revolving 70 R. P. M. the water will be heated and most in need of agitation of a rapid character.

Study of the new refining method leads to the recommendation that refining cups be left in the bath, the cold water drawn off at the end of ten minutes agitation and hot water of the proper temperature added. For this reason the twelve (12) paddle machine will be provided with a single copper water bath with suitable devices for draining and filling quickly. However, if a divided water bath is desired so that cups can be transferred from the rear (cold) bath to the front (hot) bath (or vice versa) such orders will be filled at actual additional cost of the work. This will also require some change in the arrangement for agitating the water.

A machine is now being built and will soon be completed. Until then it is impossible to arrive at costs and so prices cannot be quoted at present. It is certain that the use of stock gears and bearings and careful economy in machine shop work will result in a machine to be sold at a reasonable price.

All Chemists interested in this machine should communicate with Mr. G. Worthen Agee, c/o Barrow-Agee Laboratories, Memphis, Tennessee, without delay.

Interstate Superintendents' Convention

Atlanta Meeting Brings Out Large Attendance of Members and Exhibitors

The Interstate Oil Mill Superintendents' Association held its Eighteenth Annual Convention in the City Auditorium at Atlanta, Georgia, on June 8, 9 and 10.

Judging from the numbers of Superintendents and Managers present and the interest shown in the many splendid machinery and equipment exhibits on display, the oil milling industry is undergoing a re-awakening which will undoubtedly result in far-reaching improvements in methods, processes and equipment.

There were one hundred and sixty-seven superintendents and managers registered at the convention and the large attendance at every business session gave evidence that the members went to Atlanta for information, self-improvement and progress.

The meetings of the Association were held in Taft Hall at the Atlanta City Auditorium, with morning and afternoon sessions on each of the three days of the Convention. The meetings were presided over by Mr. J. H. Morgan, President, Superintendent of Mutual Cotton Oil Co., Ozark, Alabama.

Mr. Morgan was re-elected President of the Association and Mr. T. W. Bray of Vidalia, Ga., was re-elected Secretary.

Addresses were given by Mr. R. W. Sharp of Columbus, Ga., President Morgan, and Mr. H. H. Conner of Eufaula, Alabama.

The general themes of the papers presented to the Convention were fire-prevention, labor-saving devices and methods, and the control and improvement of quality.

The convention, during its several sessions, listened to interesting and instructive addresses by Messrs. E. E. Wadbrook, H. S. Wright, J. S. Mullen, Howell Hollis, and others.

On the final day of the Session, June 10, the Superintendents had the pleasure of receiving a friendly message of co-operation and confidence from the Interstate Cottonseed Crushers Association, delivered in the course of a most enjoyable address by Mr. Harry Hodgson, Vice-President of the Interstate Association; and President of the Hodgson Oil and Refining Co. of Athens, Ga.

Entertainment Features

The entertainment features of the Convention were most attractive, consisting of a theater party on June 8 at Keith's Theater and a Banquet and Cabaret Entertainment in the beautiful main dining room of Atlanta Athletic Club on the evening of Thursday, June 9.

The Cabaret Entertainment at the Banquet consisted of Hawaiian Music by the Kimo Kalohi Moonlight Five, Oriental Dances by Miss Louise Didschuneit, Buck and Wing Dances by Miss Beulah Leavens, Harmonica Solos by J. T. Waits, accompanied by Mrs. Andrew N. Cook, and Humorous Stories by T. J. McNulty, Esq.

All attending voted the Convention an unqualified success from every standpoint and before adjourning, the Association voted unanimously to hold next year's convention in Atlanta.

Atlanta Machinery Exhibit Magnificent

Visiting Superintendents Have Opportunity to Inspect Most Advanced Equipment for Oil Mills

THE outstanding feature of the Interstate Oil Mill Superintendents' Convention at Atlanta in June of this year was the Machinery and Supply exhibit prepared for the convention by the Interstate Superintendents' Exhibitors Association.

The exhibit was held in the Main Hall of the Atlanta City Auditorium, which was artistically decorated for the event.

There were forty exhibits, each devoted to some machine or product of vital interest to the oil miller, as follows:

Machinery Exhibit, Atlanta, June 8-10.

Anti-Friction Belt Dressing Co., Baltimore

This old-established firm had on hand samples of their well-known "Anti-Friction" leather belt dressing. The exhibit was in charge of Mr. E. M. Jones.

Atlanta Belting Co., Atlanta

Mr. Ernest D. Key and Mr. H. T. Pritchett presented this company's line of fine leather belting. The exhibit included sections of tanned leather showing the course of selection for the production of belting.

Atlanta Foundry & Machine Co., Atlanta

Re-enforced huller and attrition mill plates of newest design were featured in this company's exhibit. They also displayed an interesting conveyor hanger with a self-greasing journal box of new and improved design. O. Sheppard and Mobley Sheppard, Jr., were in charge.

Atlanta Utility Works, East Point, Ga.

Featuring the new "Utility Shaker" for separation of cotton-seed hulls from meats, the Mullen Ram Hoist and the Mullen Hull Bran Feeder. Mr. Max Pittard in command.

Barrett Watson Co., Atlanta

This well-known mill supply house exhibited a complete line of supplies and equipment including among other items, Armstrong Steam Traps, Jenkins Valves, "Quick Pack" furnace linings. The company was represented by Mr. Barrett, Mr. Watson and their staff of popular salesmen.

Bauer Bros. Co., Springfield, Ohio

The new Ball-bearing Attrition Mill of this company was on display offering visitors an opportunity to examine its many advanced features. Mr. Lockett and Mr. Sell represented the Bauer Bros.

Blackmer Rotary Pump Co., Petoskey, Mich.

The Blackmer Pump Co., exhibited its standard line of iron and bronze-lined rotary pumps with the well-known Blackmer self-aligning buckets. Mr. H. A. Haas, Atlanta District Manager, demonstrated the newest feature of Blackmer design, which consists of a lug attachment to the bucket, insuring the pump from damage by any foreign matter which may enter with the oil.

Butters Manufacturing Co., Atlanta

The exhibit of the Butters Manufacturing Co. consisted of a full-size Butters Automatic Milling Machine for cutting and sharpening a complete cylinder of linter saws in one operation. This well-designed and carefully built machine attracted much interest. The exhibit was in charge of Messrs. Redding Sims and J. C. Quinn, assisted by Messrs. R. W. Starke, C. L. Hooks and G. P. Duffy.

H. W. Caldwell & Son Co., Chicago

This division of the Link-Belt Company exhibited many of its well-built and useful conveyor chains and sprockets as well as the Silent-Chain Drives of the Parent Company. A particularly interesting feature was the Caldwell electric car-spotter, consisting of an electric motor and "mule" for moving box-cars and tank-cars on the mill siding. Messrs. I. H. Barbee and R. L. Louden represented H. W. Caldwell & Son Co., and Mr. P. W. Huddleston had charge of the Link-Belt exhibit.

W. H. Camp, Atlanta

Mr. Camp exhibited his new automatic high-density packer, for packing bags of hulls or mixed feed and this useful machine attracted much attention. Mr. Camp was assisted at his booth by Mr. H. S. Ezzard and Mr. J. A. Shields.

Carver Cotton Gin Co., East Bridgewater, Mass.

Carver Cotton Gin Company exhibited its well-known linter-saw gummer and filer in operation and producing their consistent good work. The exhibit was presided over by R. M. Fluker of Atlanta and T. P. Wallace of Memphis.

Clipper Belt Lacer Co., Grand Rapids, Mich.

The feature of this company's exhibit was their new No. 8 Belt Lacer, a large improved machine designed to handle single and double belts up to 8" in width at one operation. The machine is of staunch construction and will care for light and heavy work in lacing belts. A full line of the various other types of "Clipper" belt lacers was on display, the exhibit being in charge of Mr. Perry J. Edwards, Atlanta Representative.

Columbus Iron Works, Columbus, Ga.

Mr. R. W. Sharp, Manager, had charge of the exhibit of this mill supply house, where were shown many standard and special lines of supplies for oil millers including J-M Asbestos Packings and Chapman Ball Bearings.

Davidson-Kennedy Co., Atlanta

This, one of the leading oil-mill equipment companies of the country, had a large, well-arranged display of heavy oil-mill machinery including a complete cottonseed huller, hydraulic cake-former, Davidson hydraulic pump, steel press-boxes, hydraulic change-valves and fittings. Mr. Davidson and Mr. Kennedy were both constantly in attendance to demonstrate the points of their equipment.

Factors Service Co., Atlanta

This Company, leather belting jobbers and manufacturers, had something unique to exhibit in the nature of reclaimed leather belting, showing serviceable belting produced by cementing used leather belts to new canvas belts. The combination is strong and serviceable. The exhibit was attended by Messrs. P. L. Munford and B. J. Eiseman.

Fafnir Bearing Co., New Britain, Conn.

Featured in the exhibit of Fafnir Bearings were the new type bearings with rings and balls of molybdenum steel. Mr. A. G. Laughridge explained the merits of Fafnir Bearings to visitors at the both.

Fairbanks-Morse & Co., Chicago

For many years leaders in the manufacture of scales, pumps, trucks and oil-engines, this company had a large and interesting exhibit, in charge of Mr. J. M. Spinks of Atlanta.

Featured in the exhibit were the new Fairbanks springless dial scale, without springs or small steel ribbons, and the latest type "S" Auto-Truck scale with full capacity direct-reading springless dial.

Fort Worth Steel & Machinery Co. Fort Worth, Texas

Under the supervision of Mr. A. C. Helm, the exhibit of this company presented a Helm combination linter-saw filer and gummer in actual operation.

French Oil Mill Machinery Co., Piqua, Ohio

Featuring a McNulty hydraulic cake-stripper and a French Automatic Sampler for obtaining representative samples of oil-mill products, this exhibit was attended by Mr. C. B. Upton, General Manager, Mr. Tom Brooke, Atlanta Representative, and Mr. T. J. McNulty, Envoy Extraordinary.

Fulton Supply Co., Atlanta, Ga.

This mill-supply house exhibited a full line of supplies, featuring Dodge-Timken unit roller bearings for crushing rolls. Mr. "Dick" English and his aides were on hand to answer all inquiries.

Hardwick-Etter Co., Sherman, Texas

Manufacturers of leather belting, scales and cleaning and separating machinery for oil mills, this company was represented by Mr. W. H. Altman.

Howe Scale Co., Rutland, Vermont

The large and interesting exhibit of Howe Scale Co. contained many types of dormant and portable scales and a wagon scale, the feature which attracted most attention being the "Weightograph" attachment, a means of showing total weight immediately in illuminated white figures against a black background. This device offers a practical time-saving means of avoiding errors in weight.

The Howe exhibit was in charge of Mr. Frank Daub, of the Atlanta Branch, assisted by several salesmen.

Jenkins Bros., New York

This old-established house was present as usual with an interesting display of many types of Jenkins Valves, particularly "Renewable-disc" globe valves. Mr. B. R. Wofford was present to greet his many friends in the oil mill industry.

Keystone Lubricating Co., Philadelphia

Represented by Mr. J. H. Yerkes, Southern Manager, of St. Louis, Mr. Karl Kologiski, Jr., of Charlotte, N. C., and Mr. R. C. Barlow of Birmingham, Keystone Lubricating Company displayed a full line of cup and gear greases, and the "Keystone Safety Lubricator," a device for lubricating bearings on rolls, etc.

Moloney Belting Co., Atlanta

. Moloney Belting Co. exhibited leather belting, packing, laces, belt dressing and leather cements. Mr. L. D. Mason was in attendance.

The Murray Co., Atlanta

The Murray Company furnished a very interesting exhibit in the form of an automatic motion picture showing new methods of picking and cleaning cotton. The exhibit was managed by Mr. C. A. Pope.

Neatsol Products Co., Philadelphia

Mr. David T. Helmer, Sales Manager and Mr. James C. Chandler, Southern Representative, were busy demonstrating the superior quality of the belt dressings and packings manufactured by this company.

The Oil Miller and Cotton Ginner, Atlanta

The old-established organ of the Superindents' Association was represented by Mr. Fred W. Burruss, Mr. J. R. Dobbs, and, of course, the charming Miss Mary Burruss was there, doing all the work of the convention, without apparent effort.

Oil & Fat Industries, New York

We were there, too, renewing old friendships and forming many new ones.

Plibrico Jointless Firebrick Co., Chicago

An interesting exhibit of plastic refractories, including a model of a furnace lining, showing methods of applying this adaptable substitute for fire brick. Mr. C. W. Dunlap represented the company.

Richardson Scale Co., Clifton, New Jersey

This company exhibited their patented sacking scale for oil meal and similar products. The exhibit was in charge of Messrs. M. Bulleman and J. C. Hageman.

Reichman Crosby Co., Memphis

Exhibiting their l i n t e r-s a w s which enjoy a wide distribution, Reichman Crosby Co. were represented at the convention by Messrs.

Richard Alcott and Brooke Samual.

Sessions Mote Board Company, Columbia, S. C.

Mr. W. T. Powell was present representing this company.

Singer Sewing Machine Co., New York

Mr. Jos. C. Lewis and Mr. L. W. Rowlain of the Atlanta Branch were on hand demonstrating a new Singer Machine for sewing press-cloth in mills. The new machine sews a butt-seam without laps which means a decided saving in press-cloth expense to the oil miller.

SKF Industries, New York

This famous bearing manufacturing company had a most interesting exhibit showing the amazing reduction of friction loads gained by the application of SKF ball and spherical bearings. Mr. N. Miller of the Atlanta office was in charge of the exhibit.

Southern Power Journal, Atlanta

This journal, which covers the steam and electric power fields in Southern Territory, was represented by Mr. L. B. Gordon.

(*Continued on page* 262)

Cottonseed Crushers Meet at Memphis

Convention Transferred from New Orleans Holds Constructive and Enjoyable Sessions

THE Interstate Cottonseed Crushers' Association held its Thirty-first Annual Convention at Hotel Chisca, Memphis, Tennessee, on May 25, 26 and 27, 1927. The convention was well attended particularly so in view of the fact that the dates and location had been twice changed due to the flood conditions in the Lower Mississippi Valley.

The Rules Committee met, as usual, at the same place on the two days preceding the Convention and made important changes in the trading rules of the Association. These changes, which were adopted by the Association, are discussed in detail elsewhere in this issue.

The business sessions of the Interstate Association, presided over by President F. N. Bridgers, were held in the Hotel Chisca.

After the invocation by Rev. Dr. Charles F. Blaisdell, Rector of Calvary Episcopal Church, Memphis, an address of Welcome by Hon. Rowlett Paine, Mayor of Memphis, addresses by President Bridgers and General Counsel Christie Benet, the convention proceeded to its chief business, the discussion and approval of the changes in trading rules recommended by the Rules Committee and the consideration of reports of other committees. These matters occupied the attention of the convention during practically all of its three business sessions.

In the course of the second day's meeting the convention listened to a splendid address by Hon. Robert R. Ellis of Memphis. The third day was devoted to the election of officers for the coming year, who are as follows: President: S. W. Wilbor, Paris, Texas. 1st Vice President: James E. Byram, Alexandria, La. 2nd Vice President: Harry Hodgson, Athens, Ga. 3rd Vice President: W. A. Sherman, Houston, Texas. Secretary: George H. Bennett, Dallas, Texas. Treasurer: Major Robert Gibson, Dallas, Texas.

Committees of American Oil Chemists' Society

Much Constructive Work Planned for 1927-1928.

MR. H. P. TREVITHICK, President, American Oil Chemists' Society, announces the appointment of the following standing committees for the coming year.

In naming these committees Mr. Trevithick said: "The American Oil Chemists' Society has reached the height of its opportunity for service to the Oil and Soap Industries.

"The Society as a whole, through its Governing Committee and its Official Organ, OIL AND FAT INDUSTRIES, can maintain and increase the prestige of the Chemist as an important factor to these industries.

"The Membership Committee has before it the greatest opportunity in the history of the Society. The membership is becoming more representative of all the Oil and Soap trades every year and each member of the Society as well as the Membership Committee, should work to bring into the fold all reputable chemists in oil or soap or related work."

GOVERNING COMMITTEE:
H. B. Battle
H. J. Morrison
J. J. Vollertsen
J. C. P. Helm
R. H. Fash
A. W. Putland
J. D. Evans
W. D. Hutchins
H. P. Trevithick, Chairman, No. 2 Broadway, New York.

MEMBERSHIP COMMITTEE:
A. W. Putland, Chairman, c/o Portsmouth Cotton Oil Refining Corp., Portsmouth, Va.
P. W. Tompkins
W. G. McLeod
W. A. Peterson
Miss Rosalind Norris
L. C. Howe

REFINING COMMITTEE:
C. B. Cluff, Chairman, c/o Procter & Gamble Co., Cincinnati, Ohio.
W. D. Hutchins
E. R. Barrow
E. C. Hatter
W. R. Stryker
H. Aspegren
Sub-Committee B (Color Methods)
J. D. Evans, Chairman, c/o Law & Co., Atlanta, Ga.
G. W. Agee
H. E. Brownfield
Jas. C. Burt
Gary B. Grant
J. Pelofsky
Sub-Committee C (Corn Oil)
M. M. Durkee, Chairman, c/o A. E. Staley Mfg. Co., Decatur, Ill.
James Blades
G. A. Moore
P. E. Ronzone
R. R. Morgan
Arthur Delafontaine
R. C. Hatter
Ralph E. Howell

MOISTURE COMMITTEE:
W. H. Irwin, Chairman, c/o Swift & Co., Chicago, Ill.
J. J. Vollertsen
C. H. Cox
C. P. Long
W. D. Hutchins
N. C. Hamner
E. H. Tenent
M. L. Sheeley

CAKE COLOR COMMITTEE:
R. S. Richardson, Chairman, c/o Procter & Gamble Co., Cincinnati, Ohio.

T. C. Law
N. C. Hamner
J. R. Mays, Jr.

REFEREE BOARD:
H. J. Morrison, Chairman, Procter & Gamble Co., Cincinnati, Ohio.
Herman Aspegren
T. C. Law
W. H. Irwin
H. P. Trevithick

COMMITTEE FOR PRIZE AWARDS FOR JOURNAL ARTICLES:
David Wesson, Chairman, c/o Southern Cotton Oil Co., 2 Broadway, New York
Alan Porter Lee
H. P. Trevithick

SMALLEY FOUNDATION:
H. C. Moore, Chairman, c/o Armour Fertilizer Works, 109 W. Jackson Blvd., Chicago, Ill.
Dr. H. B. Battle
C. A. Burt
L. B. Forbes
E. H. Tenent
M. G. Boulware

AMMONIA COMMITTEE:
R. M. Chapman, Chairman, c/o Indiana Laboratories, Hammond, Ind.
H. P. Strack
Chas. W. Rice
Geo. A. Fischer
Robert White

EFFECT OF CRUDE MILL OPERATIONS ON OIL:
Andrew K. Schwartz, Chairman, c/o South Texas Cotton Oil Co., Houston, Tex.
J. J. Ganucheau

COMMITTEE TO INVESTIGATE THE DUBOSQ COLORIMETER
David Wesson, Chairman, c/o Southern Cotton Oil Co., 2 Broadway, New York
I. G. Priest
J. C. McMillan

ANALYSIS OF COMMERCIAL OILS & FATS:
W. D. Richardson, Chairman, c/o Swift & Co., Chicago, Ill.
W. H. Irwin
R. W. Bailey
T. C. Law
C. P. Long
H. J. Morrison
L. M. Tolman
H. P. Trevithick
J. J. Vollertsen
David Wesson
M. L. Sheely

BASIC RESEARCH COMMITTEE:
E. R. Barrow, Chairman, c/o Barrow-Agee Laboratories, Memphis, Tenn.
R. H. Fash
David Wesson
H. J. Morrison
W. H. Irwin

There are several other committees not yet completed, such as Linseed Oil, Olive Oil, Detergent and Neutral Oil Committees and the President will be glad to receive the names of all members interested in these subjects.

Detection of Castor Oil in Fatty Mixtures. Vizern and Guillot. (*Ann. Chem. Anal.*, 1927, 9, 1-2.)—Castor oil may be detected in fatty mixtures by the formation of octylic alcohol when about 10 grms. of the sample are saponified, the dry soap mixed with 7 to 8 grms. of potassium hydroxide and heated in a porcelain dish; the fused alkali is stirred into the soap, heating is stopped on the appearance of white fumes, and the dish covered. When cool, the odor of octylic alcohol is perceptible if 5 percent. of castor oil was originally present, and by using a control 1 percent. may be detected. D.G.H.

David Wesson Wed.

Dean of Oil Chemists Takes Bride

THE American Oil Chemists' Society, in Convention assembled at Memphis, Tennessee, on Monday, May 23rd, was buzzing with wonder at the absence of Dr. David Wesson, Char-

David Wesson

ter Member and constant worker for the welfare of the society and the progress of the oil industry.

In the course of the roll-call the secretary rose and read a post-card from Dr. Wesson announcing his marriage on May 18th to Mrs. Augustus Tilden and extending best wishes for the success of the Convention.

OIL AND FAT INDUSTRIES, of which Dr. Wesson is Consulting and Abstract Editor, joins with his many friends throughout the length and breadth of the oil trades in extending congratulations and best wishes for a long and happy wedded life.

After an extended trip and a further summer vacation at Mantoloking, New Jersey, Dr. and Mrs. Wesson will make their home at 111 S. Mountain Avenue, Montclair, New Jersey.

Dr. Wesson's hobby is sailing and he has a new and very fast sloop which he himself sails on Barnegat Bay.

(*Continued from page* 259)

Sprout, Waldron & Co., Muncy, Penn.

Exhibiting the well-known "Monarch" line of attrition mills and separating machinery in charge of Mr. J. R. Smith, Sales Manager.

Transmission Ball Bearing Co., Buffalo

Showing a full line of Chapman Ball Bearings including as the chief feature a 12 inch conveyor carried on Chapman Ball Bearing Dustproof Hangers, the Transmission Ball Bearing Company's exhibit was in charge of Mr. C. B. Sawyer of Atlanta.

J. A. Tull Rubber & Supply Co., Atlanta

This progressive supply house had an interesting exhibit of their many mill-supply lines and further quickened interest by serving lemonade to all comers. Mr. Tull was present, assisted by many of his popular salesmen.

A. A. Wood & Sons Co., Atlanta

Mr. H. B. Smith had charge of this company's exhibit of the patented Wood Duplex Saw-filer and Gummer in operation, which evoked lively interest among the visiting superintendents.

The American Oil Chemists' Society

FINANCIAL STATEMENT

Resources, Liabilities and Membership Status of the Society, May 1st, 1927.

RESOURCES		
Balance in Bank	$1,616.44	
Cash in Petty Cash Drawer	.42	
		$1,616.86
Liberty Bonds (4 of $100.00) in Safe Deposit Vault		400.00
Bonds Chicago Medical Arts Bldg. (3 of $500.00) in Safe Deposit Vault		1,500.00
Bills Receivable		9.69
Standard Lovibond Color Glasses	32	
FULLERS EARTH.		
Old Earth 1924-25-26 Supply Approximately	1,025 lbs.	
New Earth Prepared by C. B. Cluff 1926-27	300 lbs.	
In 75-4 lb. cans, 5 cans are in damaged condition, lids off and some earth lost.		
MOISTURE DISHES	6	

LIABILITIES

The Society had no outstanding bills in the Sec'y-Treas., office on May 1, 1927.

Status of the membership, April 30, 1927 is as follows:

Honorary, 5; Special Associate, 1; Corporation, 29; Active, 216; Total 251. During the year, 5/1/26 through 4/30/27 we have received new members as follows:

Special Associate, 1; Active, 27; Corporation, 1; Total members received 29. During the same period we have lost as follows:

Active by Resignation, 19; by Death, 3; by Suspension for non-payment of dues, 13; Corporation by Resignation, 6; Total members lost, 41.

The total Membership of the Society:

May 1, 1926 was....263
April 30, 1927 was..251

Net loss of members 12 for year ending April 30, 1927.

Respectfully submitted,

J. C. P. HELM.

Research in the Fat Industry

By G. D. ELSDON

IT cannot be claimed that the advance in the knowledge of the chemistry of fats since their constitution was first elucidated by Chevreul at the beginning of the 19th century has in any way kept pace with their importance or with the value that such information would have for the analyst or technologist. During the period when the chemistry of natural products was receiving such widespread attention, the time covered by the classical researches of Emil Fisher on carbohydrates and the proteins, the subject of fats failed to attract any organic chemist of outstanding ability, with the result that the main lines of advance were in those portions of the subject which were of temporary interest from the analytical or industrial standpoint, and the more fundamental questions were more or less neglected.

There are signs that a different atmosphere is to be expected. In their address to the Society of Chemical Industry at Liverpool in 1924, Dr. E. F. Armstrong and Mr. John Allan made a strong and eloquent plea for the revival of interest in the Chemistry of the fats. Another very significant indication of the increasing realization of the importance of the subject is the recent appointment of Dr. Hilditch to the Campbell-Brown Chair of Industrial Chemistry in the University of Liverpool, an appointment which has as its avowed object the study of fats from all points of view. The importance of this latter fact cannot be over-emphasized and much work of fundamental importance and far-reaching value is to be expected as a result.

It cannot even be claimed that in that branch of the subject which has attracted most attention, the analytical side, the position is at all satisfactory. To take only one point: It is doubtful whether we have any means of deciding definitely whether a given fat is entirely vegetable or whether a portion is animal. For years analysts have been in the habit of basing their opinions on the phytosteryl acetate test, but the fairly recent work of Steuart (*Analyst* 1923, 48, 155) whose conclusions are supported by others, has thrown a considerable amount of doubt upon even this. In fact it may be said definitely that this test cannot prove the presence of animal fats in mixtures containing vegetable oils. Much more work needs to be done and, of equal importance, that already done on isolated oils needs to be correlated. It may thus very easily happen that increasing knowledge will, at first, add to the difficulties of the analyst, but there is not much doubt but that finally only good can follow extended research in all branches of the subject. In any case it is obviously most undesirable that any test should be founded on faulty information.

The difficulties of the analyst may also be increased, as indeed they have already been, by the fact that new methods of cultivation affect the characteristics of natural products. It is by no means impossible that the fairly narrow limits between which individual natural products have been found to vary, depends not so much on the nature of the plant or animal from which the product is obtained, as on its

environment. This is particularly true in the case of the animal fats.

It is possible that for a long time too much attention has been given to the fats from the point of view of their being sources of mixtures of fatty acids rather than as mixtures of glycerides. Nearly all the usual analytical methods refer not to the glycerides *qua* glycerides but to the fatty acids contained therein. Thus Valenta was apparently working along the right lines with his acetic acid test, a method which although now somewhat despised, yet in a modified form may be adopted at some future time. The possible value of work on glycerides is shown by the fact that fats containing identical fatty acids may have entirely different physical properties due to the presence of characteristic mixed glycerides, and progress along these lines may be anticipated. The difficulties are great—how great only those who have attempted to fractionate mixtures of glycerides can realize.

The delights of pure research into problems of basic importance are not for the busy technologist—he must continue to confine his attention to the problems of immediate if ephemeral importance. He can, however, support in many ways those whose efforts are likely to be applied to such problems of pure chemistry.

The benefits of pure research, especially on a particular subject attacked with vision and pursued on the broadest of lines, have been proved on many occasions. It is for the Industry not only to support, but to encourage and initiate such research in its own field, which will undoubtedly be for its lasting benefit.

The Yellowing of Drying Oils

At a meeting of the Oil and Color Chemists' Association, a paper by Dr. R. S. Morrell (past president of the Association) and Mr. S. Marks, on "The Yellowing of Drying Oil Films," was read. During the last year, said Dr. Morrell, Mr. Marks and himself had been investigating the yellowing of white paints with drying oils when kept in the dark, and it had been found advisable to review the changes occurring during the oxidation of drying oil films, in order to decide, if possible, which component of the oxidation products was producing the changes in color.

Materials Investigated

A number of paint films were prepared with white lead (stack), zinc white, titanium white, timonox, arsenious oxide, and tin dioxide. The changes in color of the films, which were kept in the dark in a moist atmosphere at the ordinary temperature, were observed, using yellow and red Lovibond's tintometer glasses. The paint films were compared against a film of zinc white and Reeve's poppy seed oil as standard. The amount of oil mixed with the pigment was as small as possible, and any increase in the amount was accompanied by greater changes in color. From the results obtained in the white lead experiments, there seemed to be an indication of a maximum yellowing and reddening in six months, and afterwards a diminution, but longer trials were necessary in order to decide this. The influence of the nature of the oil used agreed with the results of

earlier investigators, and the oils could be placed in the following order of increasing yellowness: poppy, walnut, specially bleached special linseed oil (supplied by Professor Laure), and five varieties of raw bleached linseed oil prepared by one of the authors.

The rate of change of a white lead raw linseed oil film was much slower than with treated linseed oils; the original film was yellower at first, and a very thin film was formed. The same effect was observed with China wood oil, but the film was originally of a darker color. The addition of linseed oil acids, as well as oleic acid and benzoic acids, accelerated the yellowing. Oleic acid with raw linseed oil paint was more discolored than linseed oil alone when white lead was used as pigment.

Zinc white paints gave results, as regards color changes, much less striking than in the case of those with white lead; while in the case of titanium white the color changes in the oils were generally even less. With arsenious oxide, after six months' exposure, all the oils, with the exception of poppy oil, showed decided yellowing.

The Author's Conclusions

On the whole, the author's paint trials confirmed the results of previous investigators, but the forecast of Eibner, that there was little prospect of overcoming the difficulty, was too pessimistic. The behavior of stand oil was of interest in comparison with other drying oils, and the proposal to use it as a medium in the presence of petroleum thinners was worthy of consideration. The addition of dammar in turpentine as a preventive had been recognized in the craft for a long time, especially in oil varnishes on white work, and an increase in the resin content of a varnish invariably reduced the tendency of the film to become discolored by diminishing the permeability to moisture, but was often conducive to loss in lustre. The effect of manganese must now be withdrawn as a cause of the yellowing. With regard to the influence of the pigment on the discoloration, it appeared that anhydrous titanium oxide produced least yellowing with most of the drying oils tested.

From the results obtained up to the present, the property of yellowing in the dark was shown to be connected with the presence of a grouping derived from a peroxide, which grouping was contiguous to the carboxyl end of the molecule. The presence of the grouping would depend on circumstances. The basic or acidic nature of the pigment was not the deciding factor, but traces of water, or the elements of water, in a pigment, were especially active in favoring the arrangement indicated. The use of inactive anhydrous pigments to prevent the yellowing of the oxidized film was to be specially recommended. These conclusions had been suggested by earlier workers.

From the results obtained with the β-elaostearic glyceride, there were strong indications that the changes in the molecule might be controlled, because of the comparative simplicity of composition of the oxidized substance and freedom from other glycerides. Any subsequent polymerization effects of the oxidized substance could not be neglected, because there was evidence of their presence in the oxidized acids obtained from the α-eleaostearic acid.—*Chemical Age.*

Association Adopts Chemical Methods

Chemists' Committee Report Embodies New and Revised Analytical Procedure

THE recommendations of the Chemists' Committee of the Interstate Cottonseed Crushers' Association were adopted as submitted by the Memphis Convention of the Association practically without dissent.

The new methods and procedure include rigid rules for the refining loss test and a tentative method for the determination of free fatty acid in oil extracted from seed.

The most radical changes, however, are found in the new Rule 272, Section 7, which dictates that all oil which contains more than 2.50% free fatty acids and less than 4.00% *must* be classed Slightly Off in Flavor, and all oil which contains over 4.00% free fatty acids *must* be classed Off in Flavor, regardless of the actual flavor of the oil.

As the trading rules provide penalties in oil settlements for Slightly Off and Off Flavor, the net result should be to encourage the millers to greater efforts to produce oil of good quality and low free fatty acid content. It is a generally acknowledged fact that in crude oils increased free fatty acid content is nearly always co-incident with deteriorating flavor, so the new rule has a sound basis for its enactment. The indicated relief for the opponents of this rule is the improvement of methods in their seed-handling and pressing operations, so as to produce oil of superior quality.

The Chemists' Committee report as adopted follows:

Recommendations of Chemists' Committee

Insert new Rule 264, Chapter XII, Page 57, as follows:

Rule 264—Crude Cottonseed Oil. Chemists' Reports

(See Rule 272 for Method of analysis.)

Determination of Color and Excess Loss—Refining tests for settlements, shall be subject to the following provisions:

(a) At least three refinings shall always be made, using different strengths or amounts of sodium hydroxide, endeavoring to obtain a prime color with loss not over 9 per cent; the maximum amount permitted in rule 272 must be used on at least one of these refinings when the F. F. A. of the oil do not exceed 3 per cent, and on at least two of the refinings when the F. F. A. exceed 3 per cent. If a prime color with loss not over 9 per cent is not obtained, proceed as follows:

Color	Loss	Procedure
Prime, or better	Over 9%	See par. (b)
Darker than Prime	9% or less	See par. (c)
Darker than Prime	Over 9%	See par. (d)

(b) If a prime color is obtained with loss over 9 per cent, additional refinings with less sodium hydroxide must be tried to obtain a prime color with the lowest possible loss.

(c) If the color is darker than prime, with loss under 9 per cent, additional sodium hydroxide over the normal maximum of rule No. 272 may be used, and if this gives a prime color with loss not over 9 per cent, this result is to be reported, but otherwise the results

obtained with the normal maximum lye of rule No. 272 shall govern.

(d) If a prime color cannot be obtained without exceeding 9 per cent loss even as provided in paragraph (c) of this section, or if the color is darker than prime with loss over 9% when using the maximum sodium hydroxide of rule No. 272, then of two or more tests showing varying results in color, that test which produces the best color must be reported, unless another of the tests produces an oil which is darker in color reading than this lighter oil by not more than 10 per cent, with a reduction in loss greater than the numerical difference in color reading; in which case the latter result is the one to be reported.

Illustration

1—loss 12%
Color, Red 10
2—loss 10.8%
Color, Red 11 REPORT

(e) Chemists' reports for use in settlements must show the following data:

Free fatty acids, to tenths of one per cent

Color of refined oil, in terms of 35 yellow and necessary red to produce best match.

Flavor of refined oil.

Amount and strength of lye used in refining.

Refining loss, to tenths of one per cent.

Rule 270-A

Rule 270-A, Page 59—Add new Section 3, as follows:

Rule 270-A, Sec. 3—Tentative Method for:

Determination of Free Fatty Acid in Extracted Oil From Seed

At least 100 Grams of the well mixed sample of seed is heated from 30-45 minutes at from 100-105 Degrees Centigrade and cooled. The meats are then separated by any laboratory huller or mill that will approximate factory conditions and ground sufficiently to pass a 1½ MM sieve. Not less than 10 Grams of the thoroughly mixed meats are extracted by cold percolation with gasoline boiling below 70 degrees—the gasoline evaporated off and the oil weighed. 30 cc of neutralized denatured alcohol are added and the Free Fatty Acid of the oil is titrated with a Standard Caustic using Alkali Blue as an indicator. The Free Fatty Acid is calculated by the formula:

$$\frac{28.2 \times \text{normality of Alkali} \times \text{cc used}}{\text{Weight of Oil}} = \% \text{ F.F.A.}$$

Notes

The gasoline percolation should be continued sufficient time to give at least 2 Grams of oil.

The addition of a small amount of gasoline to the flask after the alcohol has been added before titrating makes the end point shaper.

Tenth Normal Caustic Soda is preferable for low Fatty Acid oils but for oils above 5 per cent, quarter or fifth Normal is preferable.

In case it is desired to make the determination where an analytical balance is not available, extract a larger quantity of meats and, after evaporating all the gasoline from the oil, pipette 7.05 Grams and titrate with quarter Normal Caustic. The reading in this case is percentage directly.

Rule 270-B—Change Section 2 to read as follows:

Section 2. Oil. Place 5 grams of the Hulls, free from Meats and Seed, in a suitable extraction apparatus and extract for three hours with petrolic ether (See Specifications Rule 271). Evaporate the ex-

tract, at the temperature of boiling water, to constant weight and report as per cent of Oil.

Rule 271, Section 3.

Eliminate "boiling below 70 degrees C," in third line and substitute (See Specifications Below):

Whenever words quoted above appear in rules, substitute (See Specifications, Rule 271, Sec. 3).

Add second paragraph to Section 3, as follows:

Specifications for petrolic ether:
Distilling between 30-70.....90%
Initial B. P. .....30-40 Deg. C.
End Point not over.....85 Deg. C.
N. V. M. (on Steam Bath). .003%
Specific Gravity ..... .630-.650

Rewrite Rule 272, as follows: (Secs. 1, 2, 3, 4 and 5)

Rule 272—CRUDE OILS (Note—See Rule 264, for reporting refining tests for settlement purposes).

Section 1—*Mixing Sample*—Shake thoroughly with the can in an inverted position, before removing any of the Oil for analysis. If oil is cold, it must be warmed to 70°F, before attempting to mix.

Section 2—*Moisture or Volatile Matter*—Place in a tared metal or procelain dish 10 grams of the well mixed sample, heat gently over a direct flame with a rotating or rocking motion, until Oil barely smokes. Cool and report loss in weight as Moisture. Reserve for Meal Determination.

Section 3—*Meal or Impurities*—Wash the residue from the moisture determination into a beaker with kerosene and warm to dissolve the Oil content. Filter the resulting mixture on a tared Gooch crucible and wash the residue with petrolic ether until free from Oil. Dry to constant weight, divide by 0.8 and report as per cent Meal or Impurities.

Section 4—Weigh 7.05 gr. of well mixed oil into a 4 oz. bottle or 250 CC flask, add 50 CC of denatured alcohol (Formula 30) containing .05% of phenolphthalein and a sufficient amount of NaOH solution to give the alcohol a faint pink color. The alcohol must be made faintly pink before adding to the oil in the bottle or flask. Titrate with .25 N NaOH solution until a permanent faint pink color is produced, which cannot be removed by violent shaking of the mixture. Report as per cent free fatty acid oleic, the number of cubic centimeters of .25 N NaOH used in the titration.

Section 5—*Refining Crude Cottonseed Oil.*

A. *Apparatus*

Scales, 1000 grams capacity, sensitive to ½ gram. Weights, 500 grams to ½ gram.

Refining cups—seamless or enameled iron cups, 4 to 4½ inches in diameter and 4 to 4½ inches deep, with a total capacity of about 900 cc.

Refining apparatus, a mechanical stirrer having T-shaped paddles with flat (not twisted) blades 1 inch wide and 3½ inches over all, set at right angles to the shaft of the paddle. Each paddle must be driven by a gear, or with other positive device, which will give the required speed without slipping even under maximum load. (Note:—It is recommended that after September 1, 1928, only gear drives be permitted.) Speed of paddles in the cold water bath must be 250 plus or minus 10 R. P. M. and the speed of paddles in the hot water bath must be 70 plus or minus 5 R. P. M. The motor and driving belt or chain must be of sufficient capacity to drive all the paddles simultaneously at the specified speeds under full load.

Two water baths with thermometers, suitably arranged to hold cups while stirring; one bath to be maintained at 18° to 22°C, using ice to cool it to this temperature, if necessary, and the other maintained at 63° to 67°C. Level of water in the baths must be as high as the level of oil and lye in the cups, and the water must be continuously agitated to maintain uniform temperatures.

B. *Sodium Hydroxide Solutions*

These solutions must be of accurately known sodium hydroxide content, free from carbonate and other impurities and must be prepared in the following manner:

A super-saturated solution is first prepared by adding to each kilogram of pure, dry solid sodium hydroxide broken up into small pieces, ¾ of a kilogram of distilled water. Heat on the steam bath with occasional stirring, for at least three hours. Then allow to settle and cool for 24 to 48 hours, keeping the vessel covered, to exclude air as far as possible. During the cooling a portion of the sodium hydroxide which had dissolved in the hot solution will crystallize out, and under these conditions the solution will then contain no measurable amounts of carbonate. If such crystals do not separate out, the solution was not super-saturated.

Decant the solution from the residue, and if not perfectly clear filter through filter paper or asbestos. Dilute to the various concentrations required with distilled water which has been previously boiled and cooled. The final strength of the diluted solutions must be adjusted by actual titration, and not by specific gravity tests. The important point is to know the exact content of sodium hydroxide rather than the exact specific gravity or Beaumé. Solutions of only the following strengths shall be used and they must be within the limits shown.

Sodium Hydroxide Table

Nominal Degrees Beaumé at 15°C	Actual NaOH Content	Allowable Variations Minimum	Allowable Variations Maximum
10	6.57%	6.44%	6.70%
12	8.00	7.84	8.16
14	9.50	9.31	9.69
16	11.06	10.84	11.28
18	12.68	12.43	12.93
20	14.36	14.07	14.65
22	16.09	15.77	16.41
24	17.87	17.51	18.23
26	19.70	19.31	20.09
28	21.58	21.15	22.01
30	23.50	23.03	23.97

C. *Choice of Lye.*

The maximum amount of sodium hydroxide allowable for refining shall be calculated from the following formulae:

The strengths of lye (expressed in Beaumé degrees) to be used for refining oils of various F. F. A., shall be as follows:

Per Cent F. F. A. Oil	Hydraulic	Expeller Oil
1.5 or less	10° and 14° B'me.	12° and 18° B'me.
1.6 -3.0	12° and 16°	16° and 20°
3.1 -4.0	14° and 18°	16° and 20°
4.1 -5.0	16° and 20°	16° and 20°
5.1 -7.5	18° and 22°	20° and 26°
7.6 -10.0	20° and 24°	20° and 26°
10.1 -15.0	20° and 26°	20° and 30°
Over 15.0	22° and 28°	20° and 30°

For hydraulic or hot pressed oils:

$$\frac{\text{F.F.A.}}{5.2} + .54 = \text{Maximum NaOH}$$

For expeller or cold pressed oils:

$$\frac{\text{F. F. A.}}{4.365} + .77 = \text{Maximum NaOH}$$

Note:—Lyes of intermediate strength between the two required by the above table may also be used, but results from same are only to be used when better than can be obtained with either of the strengths specified in the table.

The table above shows the maximum precentage of each strength of lye allowable.

D. *Refining Process*

Place 500 grams of the thoroughly mixed sample of crude oil in a tared refining cup. Adjust the temperature of the oil and of the water bath to 18-22°C. Agitator must run at the rate of 250 R.P.M. plus or minus 10. Add the proper amount of NaOH solution to the oil, as quickly as possible, with the agitator running, and stir exactly 10 minutes (30 minutes to 60 minutes for expeller or cold pressed oil) from the time the lye is added. Then immediately transfer to the 65°C. hot water bath, and stir at 70+ or—5 R.P.M. for eight minutes. Temperature of oil must

For Hydraulic or Hot Pressed Oils Per Cent Lye of Varying Beaume at 15° C Containing Maximum NaOH								For Expeller or Cold Pressed Oils Per Cent Lye of Varying Beaume at 15° C. Containing Maximum NaOH							
% FFA	Max. NaOH	12°	14°	16°	18°	20°	22°	24°	26°	28°	Max. NaOH	16°	20°	26°	30°
1.5	.83	...	8.7	...	...	...	...	...	...	...	1.11	...	...	...	...
2.0	.93	11.7	...	8.4	...	...	...	...	...	...	1.23	11.1	8.5	...	...
2.5	1.03	12.9	...	9.3	...	...	...	...	...	...	1.34	12.1	9.3	...	...
3.0	1.12	14.0	11.8	10.1	8.8	...	...	...	...	...	1.45	13.1	10.1	...	...
3.5	1.22	...	12.8	...	9.6	...	...	...	...	...	1.56	14.1	10.9	...	...
4.0	1.31	...	13.8	...	10.4	9.1	...	...	...	...	1.68	15.2	11.7	...	...
4.5	1.41	...	...	12.7	...	9.8	...	...	...	...	1.80	16.3	12.5	...	...
5.0	1.50	...	...	13.6	11.8	10.4	9.3	...	...	...	1.92	17.4	13.3	9.8	...
5.5	1.60	...	...	...	12.6	...	9.9	...	...	...	2.03	...	14.1	10.3	...
6.0	1.70	...	...	...	13.4	...	10.5	...	...	...	2.14	...	14.9	10.9	...
6.5	1.79	...	...	...	14.1	...	11.1	...	...	...	2.25	...	15.7	11.4	...
7.0	1.89	...	...	...	14.9	...	11.7	...	...	...	2.37	...	16.5	12.0	...
7.5	1.99	...	...	...	15.7	13.9	12.4	11.1	..	...	2.49	...	17.3	13.6	...
8.0	2.08	...	...	...	...	14.5	...	11.6	...	...	2.60	...	18.1	13.2	...
8.5	2.18	...	...	...	...	15.2	...	12.2	...	...	2.72	...	18.9	13.8	...
9.0	2.27	...	...	...	...	15.8	...	12.7	...	...	2.83	...	19.7	14.4	...
9.5	2.37	...	...	...	...	16.5	...	13.3	...	...	2.94	...	20.5	14.9	...
10.0	2.46	...	...	...	...	17.1	...	13.8	12.5	...	3.06	...	21.3	15.5	13.0
10.5	2.56	...	...	...	...	17.8	...	...	13.0	...	3.17	...	22.1	...	13.5
11.0	2.65	...	...	...	...	18.4	...	...	13.4	...	3.29	...	22.9	...	14.0
11.5	2.75	...	...	...	...	19.1	...	...	13.9	...	3.40	...	23.7	...	14.5
12.0	2.84	...	...	...	...	19.8	...	..	14.4	...	3.52	...	24.5	...	15.0
12.5	2.94	...	...	...	...	20.5	...	...	14.9	...	3.63	...	25.3	...	15.5
13.0	3.03	...	...	...	...	21.1	...	...	15.4	...	3.75	...	26.1	...	16.0
13.5	3.13	...	...	...	...	21.8	...	...	15.9	...	3.86	...	26.9	...	16.4
14.0	3.23	...	...	...	...	22.5	...	...	16.4	...	3.98	...	27.7	...	16.9
14.5	3.32	...	...	...	...	23.1	...	...	16.9	...	4.09	...	28.5	...	17.4
15.0	3.42	...	...	...	...	23.8	21.3	...	17.4	15.9	4.20	...	29.3	...	17.9
15.5	3.52	..	...	...	...	...	21.9	...	...	16.3	4.32	...	30.1	...	18.4
16.0	3.62	...	...	...	...	...	22.5	...	...	16.8	4.44	...	30.9	...	18.9
16.5	3.71	...	...	...	...	...	23.1	...	...	17.2	4.55	...	31.7	...	19.4
17.0	3.81	...	...	...	...	...	23.7	...	...	17.7	4.67	...	32.5	...	19.9
17.5	3.90	...	...	...	...	...	24.3	...	...	18.1	4.78	...	33.3	...	20.4
18.0	4.00	...	...	...	...	...	24.9	...	...	18.5	4.90	...	34.1	...	20.9
18.5	4.10	...	...	...	...	...	25.5	...	...	19.0	5.01	...	34.9	...	21.3
19.0	4.19	...	...	...	...	...	26.1	...	...	19.4	5.13	...	35.7	...	21.8
19.5	4.29	...	...	...	...	...	26.7	...	...	19.9	5.24	...	36.5	...	22.3
20.0	4.38	...	...	...	...	...	27.2	...	...	20.3	5.35	...	37.2	...	22.8

Part of table which could not be included above.

% FFA	Max. NaOH	10°	Max. NaOH	12°	18°
1.5	.83	12.6	1.11	13.9	8.8

then be 55 to 60°C, adjusting the temperature of the water bath, if necessary, within the limits specified, to obtain this final oil temperature. Stop agitator and allow to settle in the water bath at 65°C for one hour. Cool by setting in the cold bath 30 minutes and allow to remain at normal room temperature until the soap stock becomes hard and firm. Weigh the refining cup and contents, and deduct this weight from the total weight at beginning of test to obtain loss by evaporation. Decant the refined oil into a tared refining cup and drain the soap stock for 30 minutes. This oil is to be used for determination of grade. Weigh both oil and soap stock cups and contents. Melt the soap stock by setting it in water bath at 75° plus or minus 2°C; without stirring, for 30 minutes; decant and weigh separately any additional oil thus recovered. Add this weight to the weight of refined oil first obtained, and substract it from the soap stock weight. Repeat the remelting, if necessary, for periods of 30 minutes each until the recovered oil from the last remelting amounts to not over 2.5 grams.

Calculations — Determine refining loss by two methods of calculation, the results of which should check within one-quarter of one per cent.

Method No. 1—Weight of Crude Oil minus weight of Refined Oil gives refining loss.

Method No. 2—Weight of Soap Stock plus loss in evaporation, minus weight of NaOH solution used gives refining loss.

Rule 272, Section 6. Same as present.

Rule 272, Section 7. Entire section eliminated. Substitute following:

Rule 272, Section 7. Flavor. Oil which is not decidedly rancid, musty, sour or bitter, and does not have a flavor foreign to cottonseed oil made from sound seed, shall be graded as Prime in flavor if free fatty acids does not exceed 2.50%.

Slightly Off. Oil which is not decidedly rancid, musty, sour or bitter and exceeds 2.50% free fatty acids, but does not exceed 4.00% free fatty acids, shall be graded Slightly Off in flavor.

Off. Oil which is decidedly rancid, musty, sour or bitter and/or oil which exceeds 4.00% in free fatty acids, shall be graded Off in flavor.

Rule 277, Section 2, Page 75, Five lines from bottom—Eliminate boiling below 70 degrees C., and substitute:

(See specifications Rule 271.)

Personal Comment, cont. from p. 248

ness for some weeks, he made a special trip to Memphis to attend the Convention, although this necessitated his returning to California to complete his business there before going back to his home at Cincinnati. Mrs. Cluff accompanied Mr. Cluff on his California trip.

The croix-de-guerre with all the palms should be awarded G. Owen Daniel as the most entertaining host of Memphis. Mr. and Mrs. Daniel, assisted by their daughter and son-in-law, Mr. and Mrs. Sidney Allen, kept open house for their friends all during the convention and contributed largely to the success of all social activities.

J. P. "Jack" Harris, of Chicago Chemical Engineer and Carbon Specialist, was present with his smile ready to expound the merits of "Black" to all comers.